

(1) GENERAL INDICATIONS:

(i) APPLICANT:

- (A) NAME: Deutsches Krebsforschungszentrum
- (B) STREET: Im Neuenheimer Feld 280
- (C) TOWN: Heidelberg
- (E) COUNTRY: Germany
- (F) POSTAL CODE: 69120

(ii) TITLE OF THE INVENTION: Modularly Constructed RNA
Molecules Having Two Sequence Region Types

(iii) NUMBER OF SEQUENCES: 8

(iv) COMPUTER-READABLE VERSION:

- (A) DATA CARRIER: floppy disk
- (B) COMPUTER: IBM PC compatible
- (C) OPERATING SYSTEM: PC-DOS/MS-DOS
- (D) SOFTWARE: PatentIn Release #1.0, version #1.30
(EPO)

(v) DATA OF THE CURRENT APPLICATION: not yet known

(vi) DATA OF THE PRIOR APPLICATION:

APPLICATION NUMBER: DE 198 28 624.4
FILING DATE: June 26, 1998

(2) INDICATIONS AS TO ID NO: 1:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 8422 base pairs
- (B) KIND: nucleotide
- (C) STRAND FORM: not known
- (D) TOPOLOGY: not known

(ii) KIND OF MOLECULE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:

CTTAGAGTTT CGTGGCTTCA GGGTGGGAGT AGTTGGAGCA TTGGGGATGT TTTTCTTACC	60
GACAAGCACA GTCAGGTTGA AGACCTAACC AGGGCCAGAA GTAGCTTTGC ACTTTTCTAA	120
ACTAGGCTCC TTCAACAAGG CTTGCTGCAG ATACTACTGA CCAGACAAGC TGTTGACCAG	180
GCACCTCCCC TCCCGCCCAA ACCTTTCCCC CATGTGGTCG TTAGAGACAG AGCGACAGAG	240
CAGTTGAGAG GACACTCCCG TTTTCGGTGC CATCAGTGCC CCGTCTACAG CTCCCCCAGC	300
TCCCCCACC TCCCCACTC CCAACCACGT TGGGACAGGG AGGTGTGAGG CAGGAGAGAC	360
AGTTGGATTG TTTAGAGAAG ATGGATATGA CCAGTGGCTA TGGCCTGTGC GATCCCACCC	420
GTGGTGGCTC AAGTCTGGCC CCACACCAGC CCCAATCCAA AACTGGCAAG GACGCTTCAC	480
AGGACAGGAA AGTGGCACCT GTCTGCTCCA GCTCTGGCAT GGCTAGGAGG GGGGAGTCCC	540
TTGAACTACT GGGTGTAGAC TGGCCTGAAC CACAGGAGAG GATGGCCCAG GGTGAGGTGG	600
CATGGTCCAT TCTCAAGGGA CGTCCTCCAA CGGGTGGCGC TAGAGGCCAT GGAGGCAGTA	660

GGACAAGGTG	CAGGCAGGCT	GGCCTGGGGT	CAGGCCGGGC	AGAGCACAGC	GGGGTGAGAG	720
GGATTCCTAA	TCACTCAGAG	CAGTCTGTGA	CTTAGTGGAC	AGGGGAGGGG	GCAAAGGGGG	780
AGGAGAAGAA	AATGTTCTTC	CAGTTACTTT	CCAATTCTCC	TTTAGGGACA	GCTTAGAATT	840
ATTTGCACTA	TTGAGTCTTC	ATGTTCCAC	TTCAAAACAA	ACAGATGCTC	TGAGAGCAAA	900
CTGGCTTGAA	TTGGTGACAT	TTAGTCCCTC	AAGCCACCAG	ATGTGACAGT	GTTGAGAACT	960
ACCTGGATTT	GTATATATAC	CTGCGCTTGT	TTTAAAGTGG	GCTCAGCACA	TAGGGTTCCC	1020
ACGAAGCTCC	GAAACTCTAA	GTGTTTGCTG	CAATTTTATA	AGGACTTCCT	GATTGGTTTC	1080
TCTTCTCCCC	TTCCATTTCT	GCCTTTTGTT	CATTTTCATCC	TTTCACTTCT	TTCCCTTCCT	1140
CCGTCTCCT	CCTTCCTAGT	TCATCCCTTC	TCTTCCAGGC	AGCCGCGGTG	CCCAACCACA	1200
CTGTGCGGCT	CCAGTCCCCA	GAACTCTGCC	TGCCCTTTGT	CCTCCTGCTG	CCAGTACCAG	1260
CCCCACCCTG	TTTTGAGCCC	TGAGGAGGCC	TTGGGCTCTG	CTGAGTCCAA	CCTGGGCTGT	1320
CTGTGAAGAG	CAAGAGAGCA	GCAAGGTCTT	GCTCTCCTAG	GTAGCCCCCT	CTTCCCTGGT	1380
AAGAAAAAGC	AAAAGGCATT	TCCCACCCTG	AACAACGAGC	CTTTTCACCC	TTCTACTCTA	1440
GAGAAGTGGA	CTGGAGGAGC	TGGGCCCGAT	TTGGTAGTTG	AGGAAAGCAC	AGAGGCCTCC	1500
TGTGGCCTGC	CAGTCATCGA	GTGGCCCAAC	AGGGGCTCCA	TGCCAGCCGA	CCTTGACCTC	1560
ACTCAGAAGT	CCAGAGTCTA	GCGTAGTGCA	GCAGGGCAGT	AGCGGTACCA	ATGCAGAACT	1620
CCCAAGACCC	GAGCTGGGAC	CAGTACCTGG	GTCCCCAGCC	CTTCTCTGCT	TCCCCCTTTT	1680
CCCTCGGAGT	TCTTCTTGAA	TGGCAATGTT	TTGCTTTTGC	TCGATGCAGA	CAGGGGGCCA	1740
GAACACCACA	CATTTCACTG	TCTGTCTGGT	CCATAGCTGT	GGTGTAGGGG	CTTAGAGGCA	1800
TGGGCTTGCT	GTGGGTTTTT	AATTGATCAG	TTTTCATGTG	GGATCCCATC	TTTTTAACCT	1860
CTGTTCAGGA	AGTCCTTATC	TAGCTGCATA	TCTTCATCAT	ATTGGTATAT	CCTTTTCTGT	1920
GTTTACAGAG	ATGTCTCTTA	TATCTAAATC	TGTCCAACCTG	AGAAGTACCT	TATCAAAGTA	1980
GCAAATGAGA	CAGCAGTCTT	ATGCTTCCAG	AAACACCCAC	AGGCATGTCC	CATGTGAGCT	2040
GCTGCCATGA	ACTGTCAAGT	GTGTGTTGTC	TTGTGTATTT	CAGTTATTGT	CCCTGGCTTC	2100
CTTACTATGG	TGTAATCATG	AAGGAGTGAA	ACATCATAGA	AACTGTCTAG	CACTTCCTTG	2160
CCAGTCTTTA	GTGATCAGGA	ACCATAGTTG	ACAGTTCCAA	TCAGTAGCTT	AAGAAAAAAC	2220
CGTGTGTTGTC	TCTTCTGGAA	TGGTTAGAAG	TGAGGGAGTT	TGCCCCGTTC	TGTTTGTAGA	2280
GTCTCATAGT	TGGACTTTCT	AGCATATATG	TGTCCATTTT	CTTATGCTGT	AAAAGCAAGT	2340
CCTGCAACCA	AACTCCCATC	AGCCCAATCC	CTGATCCCTG	ATCCCTTCCA	CCTGCTCTGC	2400
TGATGACCCC	CCCAGCTTCA	CTTCTGACTC	TTCCCCAGGA	AGGGAAGGGG	GGTCAGAAGA	2460
GAGGGTGAGT	CCTCCAGAAC	TCTTCCTCCA	AGGACAGAAG	GCTCCTGCCC	CCATAGTGCC	2520
CTCGAACTCC	TGGCACTACC	AAAGGACACT	TATCCACGAG	AGCGCAGCAT	CCGACCAGGT	2580
TGTCACTGAG	AAGATGTTTA	TTTTGGTCAG	TTGGGTTTTT	ATGTATTATA	CTTAGTCAAA	2640
TGTAATGTGG	CTTCTGGAAT	CATTGTCCAG	AGCTGCTTCC	CCGTACCTG	GGCGTCATCT	2700

GGTCCTGGTA	AGAGGAGTGC	GTGGCCCACC	AGGCCCCCCT	GTCACCCATG	ACAGTTCATT	2760
CAGGGCCGAT	GGGGCAGTCG	TGGTTGGGAA	CACAGCATTT	CAAGCGTCAC	TTTATTTTCAT	2820
TCGGGCCCCA	CCTGCAGCTC	CCTCAAAGAG	GCAGTTGCCC	AGCCTCTTTC	CCTTCCAGTT	2880
TATTCCAGAG	CTGCCAGTGG	GGCCTGAGGC	TCCTTAGGGT	TTTCTCTCTA	TTTCCCCCTT	2940
TCTTCCTCAT	TCCCTCGTCT	TTCCCAAAGG	CATCACGAGT	CAGTCGCCTT	TCAGCAGGCA	3000
GCCTTGCGCG	TTTATCGCCC	TGGCAGGCAG	GGGCCCTGCA	GCTCTCATGC	TGCCCCCTGCC	3060
TTGGGGTCAG	GTTGACAGGA	GGTTGGAGGG	AAAGCCTTAA	GCTGCAGGAT	TCTCACCAGC	3120
TGTGTCCGGC	CCAGTTTTTG	GGTCTGACCT	CAATTTCAAT	TTTGTCTGTA	CTTGAACATT	3180
ATGAAGATGG	GGGCCTCTTT	CAGTGAATTT	GTGAACAGCA	GAATTGACCG	ACAGCTTTCC	3240
AGTACCCATG	GGGCTAGGTC	ATTAAGGCCA	CATCCACAGT	CTCCCCCACC	CTTGTTCCAG	3300
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ACCCCTCCCG	GCCCTGCCTG	CTGGTGGGCT	TGTCATAGCC	AGTGGGATTG	CCGGTCTTGA	3420
CAGCTCAGTG	AGCTGGAGAT	ACTTGGTCAC	AGCCAGGCGC	TAGCACAGCT	CCCTTCTGTT	3480
GATGCTGTAT	TCCCATATCA	AAAGGCACAG	GGGACACCCA	GAAACGCCAC	ATCCCCCAAT	3540
CCATCAGTGC	CAAAC TAGCC	AACGGCCCCA	GCTTCTCAGC	TCGCTGGATG	GCGGAAGCTG	3600
CTACTCGTGA	GCGCCAGTGC	GGGTGCAGAC	AATCTTCTGT	TGGGTGGCAT	CATTCCAGGC	3660
CCGAAGCATG	AACAGTGCAC	CTGGGACAGG	GAGCAGCCCC	AAATTGTCAC	CTGCTTCTCT	3720
GCCCAGCTTT	TCATTGCTGT	GACAGTGATG	GCGAAAGAGG	GTAATAACCA	GACACAAACT	3780
GCCAAGTTGG	GTGGAGAAAG	GAGTTTCTTT	AGCTGACAGA	ATCTCTGAAT	TTTAAATCAC	3840
TTAGTAAGCG	GCTCAAGCCC	AGGAGGGAGC	AGAGGGATAC	GAGCGGAGTC	CCCTGCGCGG	3900
GACCATCTGG	AATTGGTTTA	GCCCAAGTGG	AGCCTGACAG	CCAGAACTCT	GTGTCCCCCG	3960
TCTAACCACA	GCTCCTTTTC	CAGAGCATTG	CAGTCAGGCT	CTCTGGGCTG	ACTGGGCCAG	4020
GGGAGGTTAC	AGGTACCAGT	TCTTTAAGAA	GATCTTTGGG	CATATACATT	TTTAGCCTGT	4080
GTCATTGCCC	CAAATGGATT	CCTGTTTCAA	GTTACACCTT	GCAGATTCTA	GGACCTGTGT	4140
CCTAGACTTC	AGGGAGTCAG	CTGTTTCTAG	AGTTCCTACC	ATGGAGTGGG	TCTGGAGGAC	4200
CTGCCCCGGT	GGGGGGCAGA	GCCCTGCTCC	CTCCGGGTCT	TCCTACTCTT	CTCTCTGCTC	4260
TGACGGGATT	TGTTGATTCT	CTCCATTTTG	GTGTCTTTCT	CTTTTAGATA	TTGTATCAAT	4320
CTTTAGAAAA	GGCATAGTCT	ACTTGTATATA	AATCGTTAGG	ATACTGCCTC	CCCCAGGGTC	4380
TAAAATTACA	TATTAGAGGG	GAAAAGCTGA	ACACTGAAGT	CAGTTCTCAA	CAATTTAGAA	4440
GGAAAACCTA	GAAAACATTT	GGCAGAAAAT	TACATTTCGA	TGTTTTTGAA	TGAATACAAG	4500
CAAGCTTTTA	CAACAGTGCT	GATCTAAAAA	TACTTAGCAC	TTGGCCTGAG	ATGCCCTGGTG	4560
AGCATTACAG	GCAAGGGGAA	TCTGGAGGTA	GCCGACCTGA	GGACATGGCT	TCTGAACCTG	4620
TCTTTTGGGA	GTGGTATGGA	AGGTGGAGCG	TTCACCAGTG	ACCTGGAAGG	CCCAGCACCA	4680
CCCTCCTTCC	CACCTCTCTC	ATCTTGACAG	AGCCTGCCCC	AGCGCTGACG	TGTCAGGAAA	4740

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CTCTGCTCGC	CTCGGATCAG	CTGAGCCTTC	TGAGCTGGCC	TCTCACTGCC	TCCCCAAGGC	4860
CCCCTGCCCTG	CCCTGTTCAGG	AGGCAGAAGG	AAGCAGGTGT	GAGGGCAGTG	CAAGGAGGGA	4920
GCACAACCCC	CAGCTCCCCG	TCCGGGCTCC	GACTTGTGCA	CAGGCAGAGC	CCAGACCCTG	4980
GAGGAAATCC	TACCTTTGAA	TTCAAGAACA	TTTGGGGAAT	TTGGAAATCT	CTTTGCCCCC	5040
AAACCCCAT	TCTGTCCCTAC	CTTTAATCAG	GTCCTGCTCA	GCAGTGAGAG	CAGATGAGGT	5100
GAAAAGGCCA	AGAGGTTTGG	CTCCTGCCCA	CTGATAGCCC	CTCTCCCCGC	AGTGTTTGTG	5160
TGTCAAGTGG	CAAAGCTGTT	CTTCCTGGTG	ACCCTGATTA	TATCCAGTAA	CACATAGACT	5220
GTGCGCATAG	GCCTGCTTTG	TCTCCTCTAT	CCTGGGCTTT	TGTTTTGCTT	TTTAGTTTTG	5280
CTTTTAGTTT	TTCTGTCCCT	TTTATTTAAC	GCACCGACTA	GACACACAAA	GCAGTTGAAT	5340
TTTTATATAT	ATATCTGTAT	ATTGCACAAT	TATAAACTCA	TTTTGCTTGT	GGCTCCACAC	5400
ACACAAAAAA	AGACCTGTTA	AAATTATACC	TGTTGCTTAA	TTACAATATT	TCTGATAACC	5460
ATAGCATAGG	ACAAGGGAAA	ATAAAAAAAG	AAAAAAAAGA	AAAAAAAACG	ACAAATCTGT	5520
CTGCTGGTCA	CTTCTTCTGT	CCAAGCAGAT	TCGTGGTCTT	TTCCCTCGCTT	CTTTCAAGGG	5580
CTTTCCTGTG	CCAGGTGAAG	GAGGCTCCAG	GCAGCACCCA	GGTTTTGCAC	TCTTGTTTCT	5640
CCCGTGCTTG	TGAAAGAGGT	CCCAAGGTC	TGGGTGCAGG	AGCGCTCCCT	TGACCTGCTG	5700
AAGTCCGGAA	CGTAGTCGGC	ACAGCCTGGT	CGCCTTCCAC	CTCTGGGAGC	TGGAGTCCAC	5760
TGGGGTGGCC	TGACTCCCCC	AGTCCCCCTC	CCGTGACCTG	GTCAGGGTGA	GCCCATGTGG	5820
AGTCAGCCTC	GCAGGCCTCC	CTGCCAGTAG	GGTCCGAGTG	TGTTTCATCC	TTCCCACTCT	5880
GTGAGCCTG	GGGGCTGGAG	CGGAGACGGG	AGGCCTGGCC	TGTCTCGGAA	CCTGTGAGCT	5940
GCACCAGGTA	GAACGCCAGG	GACCCAGAA	TCATGTGCGT	CAGTCCAAGG	GGTCCCCCTC	6000
AGGAGTAGTG	AAGACTCCAG	AAATGTCCCT	TTCTTCTCCC	CCATCCTACG	AGTAATTGCA	6060
TTTGCTTTTG	TAATTCTTAA	TGAGCAATAT	CTGCTAGAGA	GTTTAGCTGT	AACAGTTCTT	6120
TTTGATCATC	TTTTTTTAAT	AATTAGAAAC	ACCAAAAAAA	TCCAGAAACT	TGTTCTTCCA	6180
AAGCAGAGAG	CATTATAATC	ACCAGGGCCA	AAAGCTTCCC	TCCCTGCTGT	CATTGCTTCT	6240
TCTGAGGCCT	GAATCCAAAA	GAAAAACAGC	CATAGGCCCT	TTCACTGGCC	GGGCTACCCG	6300
TGAGCCCTTC	GGAGGACCAG	GGCTGGGGCA	GCCTCTGGGC	CCACATCCGG	GGCCAGCTCC	6360
GGCGTGTGTT	CAGTGTTAGC	AGTGGGTCAT	GATGCTCTTT	CCCACCCAGC	CTGGGATAGG	6420
GGCAGAGGAG	GCGAGGAGGC	CGTTGCCGCT	GATGTTTGGC	CGTGAACAGG	TGGGTGTCTG	6480
CGTGCGTCCA	CGTGCGTGTT	TTCTGACTGA	CATGAAATCG	ACGCCCGAGT	TAGCCTCACC	6540
CGGTGACCTC	TAGCCCTGCC	CGGATGGAGC	GGGGCCCACC	CGGTTCACTG	TTTCTGGGGA	6600
GCTGGACAGT	GGAGTGCAAA	AGGCTTGACG	AACTTGAAGC	CTGCTCCTTC	CCTTGCTACC	6660
ACGGCCTCCT	TTCCGTTTGA	TTTGTCACCTG	CTTCAATCAA	TAACAGCCGC	TCCAGAGTCA	6720
GTAGTCAATG	AATATATGAC	CAAATATCAC	CAGGACTGTT	ACTCAATGTG	TGCCGAGCCC	6780

TTGCCCATGC	TGGGCTCCCG	TGTATCTGGA	CACTGTAACG	TGTGCTGTGT	TTGCTCCCCCT	6840
TCCCCCTCCT	TCTTTGCCCT	TTACTTGTCT	TTCTGGGGTT	TTTCTGTTTG	GGTTTGGTTT	6900
GGTTTTTATT	TCTCCTTTTG	TGTTCCAAAC	ATGAGGTTCT	CTCTACTGGT	CCTCTTAACT	6960
GTGGTGTTGA	GGCTTATATT	TGTGTAATTT	TTGGTGGGTG	AAAGGAATTT	TGCTAAGTAA	7020
ATCTCTTCTG	TGTTTGAAC	GAAGTCTGTA	TTGTAACAT	GTTTAAAGTA	ATTGTTCCAG	7080
AGACAAATAT	TTCTAGACAC	TTTTTCTTTA	CAAACAAAAG	CATTCGGAGG	GAGGGGGATG	7140
GTGACTGAGA	TGAGAGGGGA	GAGCTGAACA	GATGACCCCT	GCCCAGATCA	GCCAGAAGCC	7200
ACCCAAAGCA	GTGGAGCCCA	GGAGTCCCAC	TCCAAGCCAG	CAAGCCGAAT	AGCTGATGTG	7260
TTGCCACTTT	CCAAGTCACT	GCAAAACCAG	GTTTTGTTCC	GCCCAGTGGA	TTCTTGTTTT	7320
GCTTCCCCCTC	CCCCCGAGAT	TATTACCACC	ATCCCGTGCT	TTTAAGGAAA	GGCAAGATTG	7380
ATGTTTCCTT	GAGGGGAGCC	AGGAGGGGAT	GTGTGTGTGC	AGAGCTGAAG	AGCTGGGGAG	7440
AATGGGGCTG	GGCCACCCA	AGCAGGAGGC	TGGGACGCTC	TGCTGTGGGC	ACAGGTCAGG	7500
CTAATGTTGG	CAGATGCAGC	TCTTCCTGGA	CAGGCCAGGT	GGTGGGCATT	CTCTCTCCAA	7560
GGTGTGCCCC	GTGGGCATTA	CTGTTTAAGA	CACTTCCGTC	ACATCCCACC	CCATCCTCCA	7620
GGGCTCAACA	CTGTGACATC	TCTATTCCCC	ACCCTCCCCT	TCCCAGGGCA	ATAAAATGAC	7680
CATGGAGGGG	GCTTGCACTC	TCTTGGCTGT	CACCCGATCG	CCAGCAAAAC	TTAGATGTGA	7740
GAAAACCCCT	TCCCATTTCA	TGGCGAAAAC	ATCTCCTTAG	AAAAGCCATT	ACCCTCATTA	7800
GGCATGGTTT	TGGGCTCCCA	AAACACCTGA	CAGCCCCTCC	CTCCTCTGAG	AGGCGGAGAG	7860
TGCTGACTGT	AGTGACCATT	GCATGCCGGG	TGCAGCATCT	GGAAGAGCTA	GGCAGGGTGT	7920
CTGCCCCCTC	CTGAGTTGAA	GTCATGCTCC	CCTGTGCCAG	CCCAGAGGCC	GAGAGCTATG	7980
GACAGCATTG	CCAGTAACAC	AGGCCACCCT	GTGCAGAAGG	GAGCTGGCTC	CAGCCTGGAA	8040
ACCTGTCTGA	GGTTGGGAGA	GGTGCACCTG	GGGCACAGGG	AGAGGCCGGG	ACACACTTAG	8100
CTGGAGATGT	CTCTAAAAGC	CCTGTATCGT	ATTCACCTTC	AGTTTTTGTG	TTTTTGGACA	8160
ATTACTTTAG	AAAATAAGTA	GGTCGTTTTA	AAAACAAAAA	TTATTGATTG	CTTTTTTGTA	8220
GTGTTTCAGAA	AAAAGGTTCT	TTGTGTATAG	CCAAATGACT	GAAAGCACTG	ATATATTTAA	8280
AAACAAAAGG	CAATTTATTA	AGGAAATTTG	TACCATTTC	GTAAACCTGT	CTGAATGTAC	8340
CTGTATACGT	TTCAAAAACA	CCCCCCCCC	ACTGAATCCC	TGTAACCTAT	TTATTATATA	8400
AAGAGTTTGC	CTTATAAATT	TA				8422

(2) INDICATIONS AS TO ID NO: 2:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 8464 amino acids
 - (B) KIND: nucleotide
 - (C) STRAND FORM: not known
 - (D) TOPOLOGY: not known

(ii) KIND OF MOLECULE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:

CTTAGAGTTT	CGTGGCTTCG	GGGTGGGAGT	AGTTGGAGCA	TTGGGATGTT	TTTCTTACCG	60
ACAAGCACAG	TCAGGTTGAA	GACCTAACCA	GGGCCAGAAG	TAGCTTTGCA	CTTTTCTAAA	120
CTAGGCTCCT	TCAACAAGGC	TTGCTGCAGA	TACTACTGAC	CAGACAAGCT	GTTGACCAGG	180
CACTCCCCCC	AACAATATCC	TCCCTCTTCC	CCCCCCCCAC	CCCCGCCCCG	TGTGCTCGTT	240
AGGGCAATTG	AAAGGACACT	CCCATTTTTG	GTGCCATTGA	TGCCCTGTCC	ATAATAGCTT	300
CCCTGACTTT	TACACCACCC	CAACTCCCAA	TCTGAAGGAC	TGGGAGGTGT	GATGCAGGAG	360
AAACTATGGG	ACTCTTGGA	GAAGACTATG	GAGTTGGCCA	GTGATTAAGG	CCCAC TAATT	420
CCAAGTGTGG	TAGCACAGAT	CTGGCTCCAC	ATCAACCCAA	TCCAAAAGTG	ACAAGGATAT	480
TTTGCAAAAA	AAGAAAGTGG	CACCTGTCTG	ATCCAGCTCT	GACATGGCTA	GAGGTGAGTC	540
CTAAACTGAT	GGCTTATAAA	CTAGCCTGAG	CCACAGAAGA	GTATGGCCCA	GAGTGAAGTG	600
TCATCATCTG	TTCACAAGGC	ATGCTCCCCCT	AGAAGATAAT	GCTAAAGAGG	TGCCATGGAG	660
GCAGCAGGAC	AAAGTACAGG	CAGGCTAGGT	GGAGTCAAGC	CAGGCCTAGT	GCCACAGAAC	720
AAGAGAGCAG	TCTGACTAGT	AATTAAGAGG	GAAGAAAGGA	AAATATTCTT	CCAATTACTT	780
TCCAGTTCTC	CTTTAGGGAC	AGCTTAGAAT	TATTTGCACT	ATTGAGTCTT	CATGTTCCCA	840
CTTCAAAACA	AACAGATGCT	CTGAAAGCAA	ACTGGCTTGA	AATGGTGACA	CTGTCCCACA	900
AGCCACCAGA	CATGGCAGTG	TTCAGAACTA	CCTGTATCTG	TATATACCTG	CGCTTGTTTT	960
AAAGTGGGCT	CAGCACATAG	GATTCCCAAG	AAGCTCCGAA	ACTCTAAGTG	TTTGCTGCAA	1020
TTTTATAAGG	ACTTCTGAT	TGCTTTCTCT	CTCGTCCTTC	CATTTCTTCC	TTCTTTCCAT	1080
TTTCATGCTTT	CATTTCTTCC	CCTAGCTTCT	AGTTGTTTCT	TCTGTTCCAG	GCAGCTGCAG	1140
TGCTGAACCA	CATGGTTACC	TAACAGCAGT	CAGCTGCAGC	CCTAGGATTC	TTCTTGCCCT	1200
TTAACTTCCC	ATTGCCAGTG	CCAGGTATCA	TATTTAACCT	TGAGCAAGAG	CTGGGCTCTT	1260
TTGAGCCCTC	CCTAACCTCT	GTGAAGAAGA	ACAAGAAGGT	AGGAAGCTCT	TGCTCTTGCT	1320
AAGAAAAATG	TCAAAAGGCT	TTCAGACCTT	AAACAATGAG	CCTTTTCACC	TTTTACTCTA	1380
GAAAAGTGGA	CTAGAAAATC	TGGGTCACAT	TGGGTAGCTG	AAGGAGATAC	AGAGGCCCTT	1440
ATGGCCTGCC	AGAGTCGTTG	CATGGCCCAA	CAGGGGCTCC	ATGCCCACTA	CCCTTGACCC	1500
TACTCAGAAA	TCTAATGTCA	TACTTAGTGT	GGGCAGGGGA	CCTGTCAGGA	CAGATGCAGA	1560
CCTAAGCAGG	GAGTGACACC	AGGGCCCTTG	GCCCTTCTTC	TGACAAACAT	ACACATCCCA	1620
AGTCTTTTTT	TAGTGGAATT	CTTAACCTCT	TGCTCACTGG	GGACTGGGAA	GCATCAGCAC	1680
ATCCCATATT	TCAAACCTCT	CTCCATAAGT	ACAGTGGTGA	ATTTTATAGA	CTTGACTTTG	1740
CTGTGGGGTT	TTAATTGGTC	AGTTTAAATT	TGGGATCCCA	AAGTTTAAAC	CTCCATTCAG	1800
GAAGTCCTTA	TCTAGCTGCA	TATCTTCATC	ATATTGGTAT	ATCCTTTTCT	GTGTTTACAG	1860

AGATGTCTCA	TATCTATCGA	AATCTGTCTG	AGAAGTACCT	TATCAAAGTA	GCAAATGAGA	1920
CAGCAGTCTT	ATGCTTCCAG	AAACACCCAC	AGGCACGTCC	CATGTGAGCT	GCTGCCATGA	1980
ACTGTCGAGT	GTGTATTGTC	TTGTGTATTT	TCGTTAACGT	TCCCCAGCTT	CCTTCCTGCG	2040
GTGTAATCAT	GGAAGAGTGA	AACATCATAG	AAATCGTCTA	GCACTTCCTG	GCCAGTCCTT	2100
AGTGATCAGG	AACCGTAGTT	GACAGTTCCA	ATTGATAGCT	TAAGATAAAA	CCATGTTTGT	2160
CTCTTATGGA	ATGGTTAGAA	CTAAGTGAGA	GATCTTGCCC	CATTCTGTTT	GCCGAATCAT	2220
AGTTGGACTT	TTAGTGTATT	TGTATCCATT	TCCTTGTGCT	ATAAAAGCAA	ACCCTGCAAC	2280
CAGCTTTCCTG	TCAGGCAGTC	CTTTTGCCCTG	CTCTGCTTTT	GATCCTCTTA	GTCTTGCTTC	2340
TGGTTCCTCC	CTGGAGAGGG	AGGAGGGGTC	AGAAGAGGAA	TTCTGGAGGA	TCCAGGATAT	2400
GTCTTCTGA	ACTCCTGCTT	CTTCCAGTGA	CAAAAGGCCC	CTACTGCCCC	ACCCCAACCT	2460
GCCCCATGCA	CTCCTCTAGG	ACACCTTTCC	ATACTTTTCA	CAACACCTAG	CCAGGTTGAC	2520
ACCAAGTTGT	TTATTGTGGT	CTGCTTGGA	TTTTACCTGT	TAGGCTTACT	TAGTCCAATC	2580
AAATGGACTC	CAAGTTGGGT	ATCCCTCATC	TTTGGAAGAC	AACCTAGGCT	GATTAGATAT	2640
TTACTTTTGG	GATTGCAGCA	CTTTGGGTGC	CGTTTCTCTT	TTACTTGGGT	TTTATCTGCA	2700
GCTCCCTCAC	CACCACCACC	ACCCCCACT	TACCTGTATG	TAGAACTGAT	TTCAAAACTG	2760
CAGGTGGTGG	TAAGTGCAGC	TTCTTAGGGT	TTTCTTCACT	TCTTGCTTCT	TTCCCCATTC	2820
CCTCATCCAC	AAATAAGGGC	ATCACAAGTC	AGTCTCCTTT	AAGCAGGCAG	CTTTGGTGGG	2880
GTTTTTCCCC	TGGAAGCCAG	GGACCCTGTC	AGGCTGCCTC	TGCCTTGTGG	TCAGGTTGAC	2940
AGGAGGTTGG	AGGGAAAAGC	CTTAAGTCAT	GGGATTCTCA	CCAGCTGTGT	CTGGCTCAGA	3000
CCTGGAATGT	GACCTTTATT	TTGTTGTATT	TGAACATTGT	AAAGTGTGGG	TGGTACCTTA	3060
AACTGAATAT	GTGAAGAATC	CAGAAACTGA	CCAACAGCTT	TCAGATACCT	GGGGCTAGGT	3120
CACTAAGGTC	ACATCCAGTC	TTCCCTACCC	TGTTCTAGTT	GTTAGCTACT	ACCTCTCCCA	3180
GATAGATTGC	TGTATATCCT	CCAACTATGA	TCATCCTGGC	CCAAGCTTGC	CTGTTCTTGA	3240
GTCTGTCTTA	ACCAGTGGAA	CTGCTGCCCT	TGGTGTGCAG	TGAGTTGAGG	ACTCTTGGTC	3300
ACAGCCAGGC	TCTAGTAGTA	CAGCTCCTTT	CTGCTGGTGC	TGTATTTCCA	TATCAAAAGG	3360
CACAGGGGAG	ATCTAGAAAT	GCCATCTCCC	CCAGTCCATC	AGTGCCAAAC	AAGCCCATGA	3420
TCCAGCATG	GGTACAGACA	ACTCTGTTCA	GTGCTATCAC	AACAGACTAG	AGGCCATGAA	3480
CATTGGACGT	GGGAACCAGA	GCAACCCGAA	TTGCTGCTGC	TTTATTCAGC	TTTCCGTTGC	3540
TCTGACAATG	ATAAAACAAG	GCAGTAACTT	AAAACAGACT	GCCAGGTTTG	GCAGAGAAAG	3600
GAAATTCCCTT	AGCTGACAGC	ACCTCTGGAT	TTTAAATAGG	TTGTAATAAG	TGGCTCAAAC	3660
CCATCCAGGA	AAAAGCAAAA	GGGTTAGAAC	TGACCAGATG	AGACCAGCCT	GATTTTCATGC	3720
AGCCCAAATG	GAGTCCAGCT	GTCTGAACTC	TGCAGCACTT	CTCTACTACA	GTCTCCTAGA	3780
GCATTCCAGC	CAGGCTCTTC	AGGCTGAGGA	GACATCACAG	GTGCCAGTTC	TTCAAGAAGA	3840
CTTTTGTGCA	TCAGTTCATA	GCCTATATCT	TTGCCCAAGA	TTGTAGATTC	AGGTAAACAC	3900

TACAGATTCT	AGGGCAGATG	ACTGAGACTC	AGAAAAAAAG	CCCCTGTGGA	CTGTGGTATA	3960
GCGAAGTACA	AAAAGTGAAG	GGGGCTAGGG	CAGATGCCGC	ATGCCTCATG	CCAGAGCCAA	4020
CCCCTCTGCT	CCATCCACAT	CCTTTTCTGG	CTCCTTCTTC	CTGCTCTCTG	CTTCAGTGAA	4080
CCAGCCCCAC	TCTGAAGAGA	TTTGTTGATT	CTCTCCATTT	TTATGTCTTT	CTCTTTTAGG	4140
TACTATATAG	AAAAGGCTTA	GTCTAATTGT	TATAAATTGC	TAGAATACTG	CCTCCCCCAG	4200
GGTCTAAAAA	TATATGCTAA	AGGGGAAAAAC	TTGAACACTG	AAACCAGTTC	TGAACAATTT	4260
AGAAGGAAAA	CCTTGAAAAAC	ATTTAACAAC	AAATTATATT	TTAATGTTTA	TGAATAAGAG	4320
GAGGCTTTTG	AAAAAATGTT	GATCTATAAA	TACTTACTTT	AGGCCTGAGG	TGTCTAATGA	4380
GTGAACTGAG	CAATGGGAAC	TCAAGGCTGA	AGCCTCCTGC	ATCAGAGGAG	GTAGAACCAG	4440
GAGCCTCTTG	AGATTTGAGG	TGTTTTAGCA	TTGGAAAGCC	ACTCTTTGGG	TAGCTGGCCC	4500
CAGAACTAC	TTCTGACCTT	GTCATTTGGA	ATGGAGGTTA	GTGGTCTGCC	AGATGCCAAA	4560
GCTGCATGAG	ACCAGCTCTT	GGTTTATCAA	TTTGAACACT	CAGTAACCTA	GAAGGCCCAG	4620
CACAAAGTGT	CTGCTCTCTT	CTTAACTGAG	CCTGCCCCAG	CACTACTGCA	CAAATTAGGG	4680
AGGGTCTACT	TCCTACAGAG	CATCCCTCCC	TGGGCCCCCT	CCCATCCTTT	GTA CTCTACC	4740
TACCTGACCT	TCAGGATCTT	GGCACATACG	AAATGGCTGT	G TAGCAAGCA	CTTTGGCATG	4800
CCCTCCTAAA	CTTACCCCAG	AGCCTCTCCC	TGCCTCCTTA	AGCCAGTCTG	CCTGTCTTCT	4860
GGGGAGGTGT	TAGAGCCCAT	AGAATGGAGA	GGAGAAAGAA	AAGAGGAAGA	GGCAGGCAGG	4920
TAGTAAAAAG	GCTCTGGGAG	GAAAGACAGC	CTCCTAGGCT	TTGCACAAGC	AGGACTCAGC	4980
CCCTTGTTGGG	AACTAAGTGC	CATCTTGGAG	TTTAAGAACA	TTTGGACAAG	TTGCAAATGA	5040
CCTTTGCTCC	TTGCTCCTCT	CACCTTTTAT	GGGGCCCTGC	TTAGCACTGA	AAGCAAATGC	5100
GCTGAAAAGG	CAAAGAGGTT	TGGCTCCTGC	CCACTGATAG	TCCTTTCCCT	GCAGTGTTTG	5160
TGTGTCAAGT	GGCAAAGCTG	TTCTTCCTGG	TGACTCTGAT	TAGATCCAGT	AACTTAAGAG	5220
ATTTGTATGC	ATAGGTCTGC	TTTGACTCTT	CTATCTGGG	CTTTTGATTT	GTTTTTCAGT	5280
TTTGCTTTTA	GTTTTCTTAT	TTTTATTTTA	TGCACCAACT	AGACACACAA	AGCAGTTGAA	5340
TTTATATATA	TATATATATA	TATATATCTG	TATATTTTAC	AATTATAAAC	TCATTTTGCT	5400
TGTGACGCCA	CACACACACA	AAAAGAAAAA	CCTTTTAAAA	TTATACCTGT	TGCTTAATTA	5460
CAATATTTCT	GATAACCATA	GAGTAGGACA	AGGGAAAAAA	TTAAAAAA	AAAAAA	5520
AAGAAAAAAC	ACATCTGTCT	GCTGGTCACT	TCTTCAATCC	AAGCAGATCT	GTGATCTTTC	5580
CTCGCGTCTT	TCAAAGACTT	CCCTGTGCTA	AGTGAAGGAA	GCTCCAGGCT	GCACCCAGGT	5640
TTTGTGCTTT	GTTTCTCCTC	TGTTGTGAAA	GGGGCCCCAA	GATTCTGGGT	ACAGGACAGT	5700
TCATTTCAGC	ATGGGGTCAG	GAGACAAGAG	CACTCCCTTT	ACATGCTGAC	GTACAGAACT	5760
TAGTGGGAAT	AGCCTAGTCC	CCACCTCTAG	GGATGGGGAG	CTAGCATGCA	TGGGGGTGAC	5820
CCAACTCCCT	CCACCTTTCC	CTGGCCAGGA	AGAGCCTGTG	TACAGTAAGT	CTGACAAGCT	5880
TTCCCCAGTT	AGCAGGGCTC	AGAGCATTTA	AAAACCCTCC	AAACTTTGCT	GAGTCTAGGG	5940

ACTAGAGAGA	AGATAGAAGA	TTTGGTCTAT	CTCCAAGGTG	TGTAAGCTGT	ACCAGGTAGA	6000
ATGCCAGGGA	CCCCAGAACC	ACATCCAACA	GCCCAATGGG	TCTCCTCCAG	AAAGTAGTGA	6060
AGACTCCAGA	AACATCCCTT	TCTCTTCTCC	CTGCTCCCAT	GAGTAACTGC	ATTTGCTTTT	6120
GTAATCCTTA	ATGAGCATT	TCTGCTAAAA	AAAAAAAAATT	AGCTGTAACA	GTTCTTTTTG	6180
CAAAAGGATC	ATTCTTAAAT	AATTAAAAAC	ACCCCCCCCC	CAAAAAAAG	TCCAGAACCT	6240
TGTTCTTCCA	AAGCAGAGAG	CATTATAATC	AGGGCCAAAA	TCTGTCCAC	ACCTCTACCC	6300
CATCTCCTCA	TGATTGCTGC	TTCTAAGGCC	AGAATACAGC	AAAGATATTT	GTAGGCCCTT	6360
TGGGTGACTG	GGCTACCCTT	GGAGCTCTTG	GAAGATGGGC	TGGGGAAGCC	TCTGAGACCC	6420
TATCCTAGGG	CCTTGCTCTA	GGGAGTAATC	AGTATTAGTA	GAGTGTCACA	ACATTATTCC	6480
CCAGCCGGCA	TGAGATGGGG	GCAGAAGAAG	CCAAAGGGTT	GTCTCCACTG	CTACTTACTT	6540
GGCCACTGAC	AGGTAGGTGA	CCATGTATGT	CCATATGCAT	GTTTTATGGC	TGATGTGAGA	6600
TCAGCACCCA	AGTTAGCTTC	ACCTGGTGAC	CTCTAACCTT	GCCTGGATGG	AGCAGGCCAC	6660
CTGGTTCAAT	GTTTCTGGGC	AGCTGGACAA	TGGAGTGCAA	AAGGCTTACA	GAACTTGAAG	6720
CCTTTTCCTT	ACTTTGCTAG	CACGGCCTCC	TTTTCCATTT	GATTTGTCAC	TGCTTCAGTC	6780
AATAACAGCC	GCTCCAGAGT	CAGTAGTTGA	TGAATATATG	ACCAAATATC	ACCAGGACTG	6840
TACTCAACG	TGTGCCGAGC	CCTTTCCTTG	TGCTGGGCTC	CCTGTGTACC	TGGACACTGT	6900
AATGTGTGCT	GTGTTTGCTC	TCCTTCCTCT	TCCTTCCTTG	CCCTTTCCTT	GTCTTCTGG	6960
GGTTTTTCTG	TTGGGTTTGG	TTTGGTTTTA	TTTTTCCTTT	TGTGTTCCAA	ACATGAGGTT	7020
TTCTCTACTG	GTCTCTTTA	ACTGTGGTGT	TGAGGCTTCT	ATTTGTGTAA	TTTTTGGTGG	7080
GTGAAAGGAA	CTTTGCTAAG	TAAATCTCTT	CTGTGTTTGA	AATGAAGTCT	GTATTGTAAC	7140
TATGTTTAAA	GTAATTGTTC	CAGAGACAAA	TGCTTCTAGG	TACATTTTCA	TTACAAACAA	7200
AGCATTTGAA	GGGAGGGAAG	TGGTGAATAA	GACAAGAGGG	GCAATCTGAA	TTGATCCCTG	7260
CCCAGATCAG	CCAGAAGCTA	CCAAAAGTTA	AGCACTGGTT	TTCCATTCCA	AGTCAAGAGA	7320
CTGAAGCTGA	TGTTTTGCCA	TTTTCAAAGT	CAAAGCAAAA	CCAGCTTTTC	CACCCAATGG	7380
ATTCTTTGCT	TCTCCTTCCC	AGATTATTAC	TACTGCTGTA	ATAATCTAGG	AGTGCCAGGA	7440
GGGAAAGGAG	TATTAACACA	GAGCTGTGCT	CCTGAGTAT	GGAAAGGCTT	GGTCTGAGTT	7500
TTCAGGAGGA	TGACCCACTG	TGGACATGGG	GAGAAGACAG	AAGATAAATT	AGCCGCTCCC	7560
TGCCTAAGAT	ACCTCTTAAT	AGATAAGTCA	AGGCCATGGA	CATTATTGTC	TACAAGGCAT	7620
GTTTCAAAGA	CATGACCAGT	CAGGACACTT	CTGTCATACT	CCATGTTGCC	CCCTAGTACA	7680
CAGTACTAAT	CTGATATCTC	TGTTCCCGCC	ATGCCTGGGG	GATAAAATGA	TAGCAGAGAC	7740
TCCTTTCCTT	CAATGTGATC	TAATTCCCAA	CAAATCTGG	GCCTGAGATA	CCACCTGTTT	7800
CTATGGCAAA	CATCCTCAGT	AAAGTGTTAT	TCTCATTGCA	GATTGTTCCA	GCCTAATGTA	7860
AGAGGAACAG	AGCAGTGTTT	CCTTGGAGCC	TCATGTGGAC	AGTTCTACCT	GTAGTGACCA	7920
GTTGGCTATA	GTAGTTATTA	GCTGGAACAA	CCAGACAGGG	TACATGCCCC	CTCCAAAATC	7980

CATGTTGTAC	TCCCCTCTGC	CAGCCAGGGG	GGGTGAGATC	TGTAGAATAG	TGCAGCCAGT	8040
GACAAGCCAC	CTTGTGTTTG	TCACCAGCTC	AAAACTCAT	CTAAGGTTGG	GAGCAGGCAG	8100
ACAAGGCAGA	GAGAAAGATC	CAGGACAGAC	CTAGCTGGGC	TGGAGGGGTC	TTGAAAAGCC	8160
CTCTGTCGTA	TTCACCTTCA	GTTTTTGTGC	TTTGGGACAA	TTACTTTAGA	AAATAAGTAG	8220
GTCGTTTTAA	AAACAAAATA	TTGATTGCTT	TTTTGTAGTG	TTCAAAACAA	AAGGTTCTTT	8280
GTGTATAGCC	AAATGACTGA	AAGCACTGAT	ATATTTAAAA	ACAAAAGGCA	ATTTATTAAG	8340
GAAATTTGTA	CCATTTTCAGT	AAACCTGTCT	GAATGTACCT	GTATACGTTT	CAAAAACACA	8400
CCCCACTGAA	CCCCTGTAAC	CTATTTATTA	TATAAAGAGT	TTGCCTTATA	AATTTACATA	8460
AAAA						8464

(2) INDICATIONS AS TO ID NO: 3:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 803 base pairs
 - (B) KIND: nucleotide
 - (C) STRAND FORM: not known
 - (D) TOPOLOGY: not known

(ii) KIND OF MOLECULE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:

TTGCTGCAGA	TACTACTGAC	CAGACAAGCT	GTTGACCAGG	CACCCCCCA	ATACTCCCCC	60
AATGTGCTCA	TTAGAGATAG	CAGTTGAGAG	GACACTCCCA	TTTTTGGTGC	CCTGTCCATA	120
GCTTCCCTGA	CTCTTCCACC	ACCCCAACTC	CCAATCTGAG	GGACCGGGAG	GTGCGAGGCA	180
GGAAAAATAT	TGGATTCTTT	AGAGAAGACT	AGAGGTGACC	AGTGACTGTG	GCCCAGTAAT	240
TAGAACTGTG	GTGGCACAAG	TCTGGCCCCA	CATCCACCCA	ATCCAAACT	GATAAGGATA	300
TTTTGAAAAA	CAGGAAAGCA	GTACCTGTCT	GATCCAGCTC	TGGTATAGGT	AGGAGTGAGT	360
CCTGAACTGC	TGGATTACAG	ACTGGCTTGA	GCCACAGAAG	ATGATGGACC	AGAGTAAAGT	420
ATCATCACCT	GCTCACAAGG	CATGCTTCAC	TAGAGAATAA	TTCTAAAGAG	GTGCCATGGA	480
GGCAGCAGGA	CAAGGCACAA	GCAGTCTGGG	TGGGGGTCAA	GCCAGACCTA	GTGCCACAGA	540
ACAAGAGAGC	AATCTGTGAC	TAGTAGTTAG	GGACTTTGTG	GATGGGACAA	GGGGCATGGG	600
GGAAGAAATG	AAAATATTCT	TCCAATTACT	TTCCAGTTCT	CCTTTAGGGA	CAGCTTAGAA	660
TTATTTGCAC	TATTGAGTCT	TCATGTTCCC	ACTTAAAAAC	AAACAGATGC	TCTGAAAGCA	720
AACTGGCTTG	AAATGGTGAC	ACTTTGTCCC	ACAAGCCACC	AAATGTGGCA	GTGTTTAGAA	780
CTACCTGGAT	CTGTATATAC	CTG				803

(2) INDICATIONS AS TO ID NO: 4:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 790 base pairs
- (B) KIND: nucleotide
- (C) STRAND FORM: not known
- (D) TOPOLOGY: not known

(ii) KIND OF MOLECULE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:

TTGCTGCATA TACTACTGAC CAGACAAGCT GTTTATCAGG CTTTTTAGGG TACACCAGCA	60
CCTGCCCTCC ATTCATCCCT GTTGGGAGAG GGATGGTGTA CTGGTTGTCA CTAGAGACCT	120
AACAGAGTAG GGTAGTGGG AGCTTACATT TTCAGTGCCA TTAACATTCT AGTCCAAGGT	180
CTTAAATTAT TATGTTGAGG GGTTTTTTTT CCCCTGAGGG GGCCGGGGGG TGGGGGAGG	240
GTTGATTAGA TTCCTTAGGA AAGAGGGTTG AGACAGACAG CAGAGCACTG AGCAGTTGGC	300
ACTAAAGGAG ACCTTGACTA GGGGCCAGGT GGCATCATCT AATCCCAAGG GGCTCCAAGT	360
GAGTATTAGG GTGGGGGAAG ACATTATAGA AGGAATAGAA ACAGGATAGC TCAGCCTAAA	420
GAAGAGCGGT TAAAACCCTA CCCACCAGGA GTTGACTTGA AAGAGGCCCC TATGGAGGAA	480
TCCCCAACCA CAAAAGCAA TCTTGAGCTG CAGCTGCTTC ATTTAGTGGA CCTTGTGTAT	540
ATCTGGGTGT GTATGCACAT AGATAGACAG TGAGAAAGAA AACTGTTCTT CCAGTTCTTT	600
TCCAGTGCTA CTAGCTTAGG GACAGGTTAG AACTGTCTGC ACAATTGTGT GATCATTCCC	660
ATTCCCCTT CAAAACAAAC TGA CTGAGAT GTTCAACAGA AAAGTGGCTT CAATGGGTAA	720
CATGCCCTTG CCACTTACTT AAGACACTGG TGTGATGGGG TTTTGAAGTC CCTATATTTG	780
TAGGTATCTG	790

(2) INDICATIONS AS TO ID NO: 5:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 841 base pairs
- (B) KIND: nucleotide
- (C) STRAND FORM: not known
- (D) TOPOLOGY: not known

(ii) KIND OF MOLECULE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:

TTGCTGCAGA TACTACTGAC CAGACAAGCT GTTGACCAGG CACCTCCCCT CCCGCCAAA	60
CCTTTCCCCC ATGTGGTCGT TAGAGACAGA GCAGTTGAGA GGACACTCCC GTTTTCGGTG	120
CCATCAGTGC CCCGTCTACC ACTCCCCCAG CTCCCCCAC CTCCCCACT CCAACCACG	180
TTGGGACAGG GAGGTGTGAG GCAGGAGAGA CAGTTGGATT CTTTAGAGAT GGATGTGACC	240

AGTGGCTATG	GCCCGTGCGA	TCCCACCCGT	GGCGGCTCAA	ATCTGGCCCC	ACCCCAGCCC	300
CAATCCAAAA	CTGGCAAGGA	CGCTTCACAG	GACAGGAAAG	TGGCACCTGT	CTGTTCGGGC	360
ATGGCTAGGA	GGGAGTTGTC	CCTTGAAC TA	CTGGGTGTAG	ACTGGCCTAA	ATCACAGGAG	420
AGGATGGCCC	AGGGTGAGGT	GGCATGGTCC	ATTCTCAAGG	GACGTCCTCC	AGTTGGTGGC	480
ACTAGAGAGG	CCATGGAGGC	AGTAGGACAA	GGCACAGGCA	GGCTGGCCCA	GGGTCAGGCC	540
GGGCCGAACA	CAGCGGGGTG	AGAGGGATTC	CTCGTCTCAG	AGCAGTCTGT	GACCGGTAGT	600
TAGGGACTTA	GTGGACAGGG	AAGGGGCAAA	GGGGGAGGAG	AAGAAAATGT	TCTTCCAGTT	660
ACTTTCCAAT	TCTACTCCTT	TAGGGACAGC	TTAGAATTAT	TTGCACTATT	GAGTCTTCAT	720
GTTCCCACTT	CAAAACAAAC	AGATGCTCTG	AGAGCAAAC T	GGCTTGAATT	GGTGACGTTT	780
AGTCCCTCAG	GCCACCAGAT	GTGATGGTGT	TGAGAACTAC	CTGGATATGT	ATATATACCT	840
G						841

(2) INDICATIONS AS TO ID NO: 6:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 846 base pairs
- (B) KIND: nucleotide
- (C) STRAND FORM: not known
- (D) TOPOLOGY: not known

(ii) KIND OF MOLECULE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:

TTGCTGCAGA	TACTACTGAC	CAGACAAGCT	GTTGACCAGG	CACCTCCCCCT	CCCGCCCAAA	60
CCTTTCCCCC	ATGTGGTCGT	TAGAGACAGA	GCAGTTGAGA	GGACACTCCC	GTTTTCGGTG	120
CCATCAGTGC	CCCGTCTGCA	GCTCCCCCAG	CTCCCCCCAC	CTCCCCCACT	CCCAACCACG	180
TTGGGACAGG	GAGGTGTGAG	GCAGGAGAGA	CAGTTGGATT	CTTTCGAGAA	GATGGATATG	240
ACCAGTGGCC	ATGGCCTGTG	CGATCCCACC	CGTGGCGGCT	CAAGTCTGGC	CCCACACCAG	300
CCCCAATCCA	AAACTGGCAA	GGACGCTTCA	CAGGACAGGA	AAGTGGCACC	TGTCTGCTCC	360
AGCTCTGGCA	TGGCTAGGAG	GGAGTCGTCC	CTTGAACTAC	TGGGTGTAGA	CTGGCCTGAA	420
CCACAGGAGA	GGATGGCCCA	GGGTGAGGTG	GCATGGTCCA	TTCTCAAGGG	ACGTCTCTCA	480
ACGGGTGGCG	CTAGAAAGGC	CATGGAGGCA	GTAGGACAAG	GCGCAGGCAG	GCTGGCCCCG	540
GGTCAGGCCG	GGCAGGGCAC	AGCGGGGTGA	GAGGGATTCC	TAATCACTCA	GAGCAGTGTG	600
TGACTGGTAG	TTAGGGACTC	AGTGGACAGG	GGAGGGGCGA	GGGGGCAGGA	GAAGAAAATG	660
TTCTTCCAGT	TACTTTCCAA	TTCTCCTTTA	GGGACAGCTT	AGAATTATTT	GCACTATTGA	720
GTCTTCATGT	TCCCACTTCA	AAACAAACGA	TGCTCTGAGA	GCAAAC TGGC	TTGAATTGGT	780
GACATTTAGT	CCCTCAAGCC	ACCAGATGTG	AGTGTGAGAG	ACTACCTGGA	TTTGTATATA	840

TACCTG

846

(2) INDICATIONS AS TO ID NO: 7:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 813 base pairs
 - (B) KIND: nucleotide
 - (C) STRAND FORM: not known
 - (D) TOPOLOGY: not known

(ii) KIND OF MOLECULE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:

TTGCTGCAGA TACTACTGAC CAGACAAGCT GTTGACCAGG CACTCCCCAC AACAACAACC	60
CCCTCCCTCC TCACCCACC CCTATCCCCT GTGTGCTCAT TAGAGAGGGC AATTGAGAGG	120
ACACTCCCAT TTTTGGTGCC ACTGATGCCC TGTCCATAGC TTCCCTGACT TTTACACCAC	180
CCCAACTCCC AATCTGAGGG ACTGGGAGGT GTGACGCAGG AGAAACTATA TAGGACTCTT	240
GGGAGAAGAC TATAGAGTTG GCAAGTGATT GCGCCCCAGT AATTCCAACGT GTGGTAGCAC	300
AAGTCTGGCT CCACACCAAC CCAATCCAAA ACTGACAAGG ACATTTTGCA AAAAATGAAA	360
GTGGCATTTC TCTGATCCAG CTCTGGCATG GCTAGAGATG AGTCTTAAAC TGTTGGCTTA	420
TAAACTGGCC TGAGCAACAG AAGAGGATGG CCCAGAGTAA AGTGTCATCA TCTGTTTACA	480
AGGCATGCTC CCCTAGAAGT TCATGCTAAA GAAGTGCCAT GGAGGCAGCA GGACAAAGTA	540
CAGGCTAGGT GGAGTCAAGC CAGGCCTAGT GCCACAGAGC AAGAGAGCAG TCTCTGACTA	600
GTAGTTAAGG GGAAGAAAAG AAAAATATTC TTCCAATTGC TTTCCAGTTC TCCTTTAGGG	660
ACAGCTTAGA ATTATTTGCA CTATTGAGTC TTCATGTTCC CACTTCAAAA CAAATAGATG	720
CTCTGAAAGC AACTGGCTT GAAATGGTGA CACTGTCCCA CAAGCCACCA GACAATGGCA	780
GTGTTTCAGAA CTACCTGTAT ATGTATATAC CTG	813

(2) INDICATIONS AS TO ID NO: 8:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 842 base pairs
 - (B) KIND: nucleotide
 - (C) STRAND FORM: not known
 - (D) TOPOLOGY: not known

(ii) KIND OF MOLECULE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:

TTGCTGCAGA TACTACTGAC CAGACAAGCT GTTGACCAGG CACCTCCCCT CCCGCCCAA	60
CCTTTCCCCC ATGTGGTCGT TAGAGACAGA GCGACAGAGC AGTTGAGAGG AACTCCCCT	120

TTTCGGTGCC	ATCAGTGCCC	CGTCTACAGC	TCCCCCAGCT	CCCCCCACCT	CCCCCACTCC	180
CAACCACGTT	GGGACAGGGA	GGTGTGAGGC	AGGAGAGACA	GTTGGATTCT	TTAGAGAAGA	240
TGGATATGAC	CAGTGGCTAT	GGCCTGTGTG	ATCCCACCCG	TGGTGGCTCA	AGTCTGGCCC	300
CACACCAGCC	CCAATCCAAA	ACTGGCAAGG	ACGCTTCACA	GGACAGGAAA	GTGGCACCTG	360
TCTGCTCCAG	CTCTGGCATG	GCTAGGAGGG	GGGAGTCCCT	TGAACTACTG	GGTGTAGACT	420
GGCCTGAACC	ACAGGAGAGG	ATGGCCCAGG	GTGAGGTGGC	GTGGTCCATT	CTCAAGGGAC	480
GTCTTCCAAC	GGGTGGCGCT	AGAGGCCATG	GAGGCAGTAG	GACAAGGCGC	AGGCAGGCTG	540
GGCCGGGGTC	AGGCCGGGCA	GAGCACAGCG	GGGTGAGAGG	GATTCCCTAAT	CACTCAGAGC	600
AGTCTGTGAC	TTAGTGGACA	GGGGAGGGGG	CAAAGGGGGA	GGAGAAGAAA	ATGTTCTTCC	660
AGTTACTTTC	CAATTCTCCT	TTAGGGACAG	CTTAGAATTA	TTTGCACTAT	TGAGTCTTCA	720
TGTTCCCACT	TCAAAACAAA	CAGATGCTCT	GAGAGCAAAC	TGGCTTGAAT	TGGTGACATT	780
TAGTCCCTCA	AGCCACCAGA	TGTGACAGTG	TTGAGAACTA	CCTGGATTTG	TATATATACC	840
TG						842